**From:** PETERSON Jenn L
**To:** Eric Blischke/R10/USEPA/US@EPA
**Cc:** Burt Shephard/R10/USEPA/US@EPA; Dana Davoli/R10/USEPA/US@EPA; POULSEN Mike
**Subject:** RE: Bass Lengths
**Date:** 11/01/2007 08:34 PM

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Eric,

For several reasons I would advocate including the larger fish in the composite samples. I don't think our goal for the risk assessment is to get the best estimate of concentration from a mean fish size (e.g. 280 mm), but rather to get an estimate of exposure concentrations for fish (mean fish concentration, 95% UCL on the mean, or maximum exposure). Exposure concentration (and corresponding size classes) means something different depending on whether we are talking about the HH risk assessment, the eco wildlife assessment or the fish risk assessment.

I also think it could be misleading to look at the fish collected for this effort as a comprehensive study on what size classes of fish are available or present in the ISA. Although what they caught may give some indication on what sizes are available to fishermen, for many reasons the numbers caught shouldn't be used to define what the "mean fish size" we are evaluating in the ISA for the risk assessments. This restriction would be particularly limiting for the eco risk assessment - more specifically the fish risk assessment where exposure estimates should be based on all fish sizes for comparison to tissue residue toxicity reference values.

I still think the best case scenario for the eco and HH risk assessments would be to base estimates of exposure on individual fish that are not necessarily restricted by an artificial composite size range. That way, the 95 UCL for HH and wildlife receptors would be calculated based on the variability in the dataset - like we would do for sediment. Since this is not possible, the average that encompasses the range of fish in the ISA has to be at least somewhat comprehensive. The way we are proposing to combine the fish in the laboratory will result in a weighted mean (by mass), since we are not compositing equal aliquots of each fish to form the composites. I think it has been argued the appropriateness of this for HH (people consume fish of unequal mass), and that is why this procedure was selected for Round 1. If it is the weighted mean that is concerning you I would revise the FSP to composite equal aliquots from each fish so that the concentration from each fish is represented, but not the mass (is this what you mean by a high bias?). If we are to proceed with the weighted approach, I don't think we should omit fish at the upper end of the size range when available. Otherwise we are artificially restricting what the mean concentration (from the composite) can be by excluding data going into the analysis. If you ultimately feel that we need to stick with an artificial "mean fish size" for comparisons between river miles, then you also may want to consider pulling out the larger fish and analyzing those separately to provide information on the full size range needed for exposure estimates (oh, and maybe snatch those larger ones back that were released).

-Jennifer

-----Original Message-----
From: Blischke.Eric@epamail.epa.gov
[mailto:Blischke.Eric@epamail.epa.gov]
Sent: Thursday, November 01, 2007 3:48 PM
To: Shephard.Burt@epamail.epa.gov; Davoli.Dana@epamail.epa.gov; POULSEN Mike; PETERSON Jenn L
Subject: Bass Lengths

Ok - I looked at the bass samples collected and ran some statistics. The data set includes bass that were captured and released as well as those to be included in the compositing scheme. There were a number that were identified as "< 225" I used a length of 225 for these fish which should be conservative. The data set is summarized in the attached data set. Some statistics:

Mean = 273.5 mm
95% UCL of Mean = 280.6 mm
95% of distribution = 372.5 mm
Minimum = 150 mm
Max = 530 mm

I just have to say that I am concerned about biasing our composite data set on the high end. I believe that the 190 or so fish collected by Bill Egan and members of the bass and panfishers club represents a good distribution of what a typical fisher would capture. I have no idea about what fiish may be kept vs. thrown back.

If we are trying to come up with a "good estimate of the mean," it seems to me that we should be targeting a mean length of 280.6 mm. Ideally, we should include a range of fish lengths that reflects the range that are caught with a mean close to the 95% UCL of the mean. However, the 0.75 rule sort of forbids that. Let me know what you think.

Eric

(See attached file: 3BBassStat.xls)